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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,725	07/28/2003	Ho-Jin Kweon	1567.1007-D	7093
49455	7590	08/22/2006		
STEIN, MCEWEN & BUI, LLP 1400 EYE STREET, NW SUITE 300 WASHINGTON, DC 20005				
			EXAMINER CREPEAU, JONATHAN	
			ART UNIT 1745	PAPER NUMBER

DATE MAILED: 08/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/627,725

Applicant(s)

KWEON ET AL.

Examiner

Jonathan S. Crepeau

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 11-24,38 and 39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-24,38 and 39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 2, 2006 has been entered.

This Office action addresses claims 11-24 and newly added claims 38 and 39. The Claims 11-24 remain rejected under 35 USC 102 and 103 for the reasons of record and claims 11-13, 15, 17, 18, 38, and 39 are newly rejected under 35 USC 102. This action is non-final.

### ***Claim Rejections - 35 USC § 102***

2. Claims 11-20 and 38 are rejected under 35 U.S.C. 102(a) or (e) as being anticipated by Kweon et al (U.S. Patent 6,183,911). The reference is directed to methods of making an active material comprising a lithiated core material and a vanadium pentoxide coating thereon (see col. 1, line 25 and line 35). The vanadium pentoxide may be applied via an organic solution or an aqueous solution, either of which may be refluxed (see col. 2, line 41). The weight percentage of the vanadium oxide in the solution may be 0.1-30 wt%. The active material is not "heat treated" since the heating does not cause conversion to an oxide. Thus, the instant claims are anticipated.

3. Claims 11, 12, 15, 17, 18, and 38 are rejected under 35 U.S.C. 102(b) as being anticipated by Wang (U.S. Patent 5,783,328). The reference is directed to methods of making an active material comprising a lithiated manganese oxide core material and a lithium or cobalt-containing coating thereon (see abstract). The active material is made by adding the lithium manganese oxide to an aqueous cobalt or lithium compound solution, mixing, heating the solution to evaporate the water, and then drying the product in a carbon dioxide atmosphere. The active material is not "heat treated" since the heating does not cause conversion to an oxide. Thus, the instant claims are anticipated.

4. Claims 11-13, 15, 17, 18, 38, and 39 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 9-171813. The reference is directed to a rechargeable lithium battery comprising a lithiated positive electrode material. Regarding claim 12, the active material may comprise  $\text{LiCoO}_2$ ,  $\text{LiNiO}_2$ , or  $\text{Li}_x\text{Ni}_y\text{Co}_{1-y}\text{O}_2$  (see paragraph 24). The active material comprises a surface treatment layer on the lithiated core comprising a networked aluminum hydroxide/oxyhydroxide structure (see Figure 1). Regarding claim 18, in addition to aluminum, silicon or titanium may also be used (see paragraph 20). Regarding claims 11, 38, and 39, the active material is made by a process of dissolving aluminum hydroxide in aqueous solution, coating the active material, and drying the coated compound at 120 degrees C for 2 hours (see [0036]). Regarding claim 13, an alcohol may also be used as a solvent (see [0022]).

***Claim Rejections - 35 USC § 103***

5. Claims 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang.

The reference is applied to claims 11, 12, 15, 17, 18, and 38 for the reasons stated above.

Furthermore, regarding claim 21, the heating of the solution to evaporate the water can be characterized as “continuously increasing the temperature within the mixer.” However, the reference does not expressly teach that the lithiated compound and the solution are “injected” into the mixer as recited in claim 21, or that the blowing gas (carbon dioxide) is injected into the mixer as recited in claim 22, or that the coating step is performed under vacuum as recited in claim 23. The reference also does not expressly teach a sieving step as recited in claim 24.

However, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated to sieve the active material of Wang in order to obtain an appropriate particle size. As such, this limitation is not considered to distinguish over the reference.

Furthermore, the limitation that the lithiated compound and the solution are “injected” into the mixer is not considered to distinguish over the reference. It would be obvious to employ any method that would result in sufficient mixing of the lithiated compound and the coating solution. As such, the limitation that these materials are “injected” into the mixer would be obvious to a skilled artisan.

Regarding the limitation that the blowing gas (carbon dioxide) is injected into the mixer as recited in claim 22, this limitation is also not considered to distinguish over the reference. No substantive difference is seen in performing the heat treatment with the gas outside the mixer, as

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disclosed in the reference, or within the mixer, as claimed. As such, the subject matter of claim 22 would also be rendered obvious.

Regarding the limitation that the coating step is performed under vacuum as recited in claim 23, this step would also be well within the skill of the art to perform in the method of Wang. It is known that lithiated compounds are sensitive to moisture in the air, and as such, the execution of the mixing step in an inert or evacuated atmosphere is considered to be within the skill of the art.

#### ***Double Patenting***

6. Claims 11-24, 38, and 39 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over the claims of U.S. Patent Nos. 6183911, 6753111, 6797435, and 6846592. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the above patents anticipate at least the independent claims.

7. Claims 11-20, 24, 38, and 39 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over the claims of copending Application No. 10/944892. Although the conflicting claims are not identical, they

are not patentably distinct from each other because the claims of the '892 application anticipate at least the independent claims.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

#### *Response to Arguments*

8. Applicant's arguments filed August 2, 2006 have been fully considered but they are not persuasive. Applicants state that Kweon and Wang disclose heat-treatment steps, which are excluded by the present claims. However, in the context of the present application, "heat treatment" is interpreted as a step which causes the conversion of the surface layer to an oxide (see instant specification, [0079] and [0080]). As stated in the Advisory Action of July 13, 2006, neither Kweon nor Wang disclose heating steps that cause a conversion to oxide. As such, neither of the references disclose "heat-treatment," and thus, the disclosures of both references meet the claim language. In Kweon, vanadium oxide is already present in the precursor and no further formation of oxide occurs during drying. In the Wang reference, a carbonate is formed upon drying. In addition, the references meet the language in claim 38 that the drying is conducted "at a temperature where a conversion of a precursor to an oxide does not occur" since as noted above, an oxide is not formed. As such, the references are still believed to properly applicable to the claims.

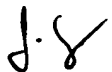
***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299.

The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan, can be reached at (571) 272-1292. The phone number for the organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jonathan Crepeau  
Primary Examiner  
Art Unit 1745  
August 18, 2006